

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) An electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece, said first process using a first current waveform, said second process using a second current waveform and a circuit for shifting between said first and second weld processes, said circuit including a counter for counting said waveforms in said first and second processes and a circuit to shift from the process being processed to the other weld process when said waveform count of said weld process being processed reaches a preselected number for such weld process, wherein said first welding process is a STT process or a CV spray process.

2. (Original) An electric arc welder as defined in claim 1 wherein said first weld process is a low heat STT process.

3. (Cancelled)

4. (Original) An electric arc welder as defined in claim 1 wherein said second weld process is a high heat STT process.

5-6. (Cancelled)

7. (Currently Amended) An electric arc welder as defined in claim 6 1 wherein said second process is an STT process.

8. (Original) An electric arc welder as defined in claim 1 wherein said second process is a short-arc CV process.

9. (Cancelled)

10. (Currently Amended) An electric arc welder as defined in claim 9 1 wherein said second process is a pulse welding process.

11. (Original) An electric arc welder as defined in claim 1 wherein said first process is a welding process with a closed power feedback loop.

12. (Cancelled)

13. (Original) An electric arc welder as defined in claim 1 wherein said first process is a high heat process.

14. (Cancelled)

15. (Original) An electric arc welder as defined in claim 1 wherein said second process is a low heat process.

16. (Cancelled)

17. (Currently Amended) An electric arc welder as defined in claim 16 1 wherein said preselected number is essentially the same during both said first and second processes.

18-19. (Cancelled)

20. (Original) An electric arc welder including a high speed switching power supply with a controller for creating a pulse wave weld process and a STT weld process, a circuit activated to create a short signal when the arc voltage is below a value indicative of a short and a switch to shift said controller from said pulse wave process to said STT process by a process shift signal created upon creation of said short signal.

21. (Original) An electric arc welder as defined in claim 20 including a timer to create said shift signal only when said short signal is held for a given time.

22. (Original) An electric arc welder as defined in claim 21 wherein said time is generally greater than 1.0 ms.

23. (Original) An electric arc welder as defined in claim 21 wherein said time is greater than a set time in the general range of 0.2 to 0.5 ms.

24-27. (Cancelled)

28. (Currently Amended) A method of operating an electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece by a wire feeder, said first process using a first current waveform, said second process using a second current waveform, wherein said first weld process is a STT process or a CV spray process, said method comprising:

- (a) shifting between said first and second weld processes;
- (b) counting said waveforms in said first and second processes; and,
- (c) shifting from the process being processed to the other weld process when said waveform count of said weld process being processed reaches a preselected number for such weld process.

29. (Original) A method as defined in claim 28 wherein said first weld process is a low heat STT process.

30. (Cancelled)

31. (Original) A method as defined in claim 28 wherein said second weld process is a high heat STT process.

32-33. (Cancelled)

34. (Currently Amended) A method as defined in claim ~~33~~ 28 wherein said second process is an STT process.

35. (Original) A method as defined in claim 28 wherein said second process is a short-arc CV process.

36. (Cancelled)

37. (Currently Amended) A method as defined in claim ~~36~~ 28 wherein said second process is a pulse welding process.

38. (Original) A method as defined in claim 28 wherein said first process is a welding process with a closed power feedback loop.

39. (Cancelled)

40. (Original) A method as defined in claim 28 wherein said first process is a high heat process.

41. (Cancelled)

42. (Original) A method as defined in claim 28 wherein said second process is a low heat process.

43. (Cancelled)

44. (Currently Amended) A method as defined in claim ~~43~~ 28 wherein said preselected number is essentially the same during both said first and second processes.

45-46. (Cancelled)

47. (Currently Amended) A method of operating an electric arc welder including a high speed switching power supply with a controller for creating a pulse wave weld process and a short clearing weld process, wherein said short clearing weld process is the STT process, said method comprising:

(a) creating a short signal when the arc voltage is below a value indicative of a short; and,

(b) shifting said controller from said pulse wave process to said short clearing process by a process shift signal created upon creation of said short signal.

48. (Original) A method as defined in claim 47 including:

(c) creating said shift signal only when said short signal is held for a given time.

49. (Original) A method as defined in claim 48 wherein said time is generally greater than 1.0 ms.

50. (Original) A method as defined in claim 48 wherein said time is greater than a set time in the general range of 0.2 to 0.5 ms.

51-54. (Cancelled)

55. (New) An electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece, said first process using a first current waveform, said second process using a second current waveform and a circuit for shifting between said first and second weld processes, said circuit including a counter for counting said waveforms in said first and second processes and a circuit to shift from the process being processed to the other weld process when said waveform count of said weld process being processed

reaches a preselected number for such weld process, wherein said second welding process is a STT process or a short-arc CV process.

56. (New) An electric arc welder as defined in claim 55 wherein said first weld process is a low heat STT process.

57. (New) An electric arc welder as defined in claim 55 wherein said second weld process is a high heat STT process.

58. (New) An electric arc welder as defined in claim 55 wherein said first process is a CV spray process.

59. (New) An electric arc welder as defined in claim 55 wherein said first process is a welding process with a closed power feedback loop.

60. (New) An electric arc welder as defined in claim 55 wherein said first process is a high heat process.

61. (New) An electric arc welder as defined in claim 55 wherein said second process is a low heat process.

62. (New) An electric arc welder as defined in claim 55 wherein said preselected number is essentially the same during both said first and second processes.

63. (New) An electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece, said first process using a first current waveform, said second process using a second current waveform and a circuit for shifting between said first and second weld processes, said circuit including a counter for counting said waveforms in said first and second processes and a circuit to shift from the process being processed to the

other weld process when said waveform count of said weld process being processed reaches a preselected number for such weld process, wherein said first process is a high heat process with a closed power feedback loop.

64. (New) An electric arc welder as defined in claim 63 wherein said first weld process is a low heat STT process.

65. (New) An electric arc welder as defined in claim 63 wherein said second weld process is a high heat STT process.

66. (New) An electric arc welder as defined in claim 63 wherein said first process is a pulse welding process.

67. (New) An electric arc welder as defined in claim 63 wherein said second process is an STT process.

68. (New) An electric arc welder as defined in claim 63 wherein said second process is a short-arc CV process.

69. (New) An electric arc welder as defined in claim 63 wherein said first process is a CV spray process.

70. (New) An electric arc welder as defined in claim 63 wherein said second process is a pulse welding process.

71. (New) An electric arc welder as defined in claim 63 wherein said first process is a high heat process.

72. (New) An electric arc welder as defined in claim 63 wherein said second process is a low heat process.

73. (New) An electric arc welder as defined in claim 63 wherein said first process is an electrode positive process and said second process is an electrode negative process.

74. (New) An electric arc welder as defined in claim 63 wherein said preselected number is essentially the same during both said first and second processes.

75. (New) A method of operating an electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece by a wire feeder, said first process using a first current waveform, said second process using a second current waveform, wherein said second welding process is a STT process or a short-arc CV process, said method comprising:

- (a) shifting between said first and second weld processes;
- (b) counting said waveforms in said first and second processes; and,
- (c) shifting from the process being processed to the other weld process when said waveform count of said weld process being processed reaches a preselected number for such weld process.

76. (New) A method as defined in claim 75 wherein said first weld process is a low heat STT process.

77. (New) A method as defined in claim 75 wherein said second weld process is a high heat STT process.

78. (New) A method as defined in claim 75 wherein said first process is a CV spray process.

79. (New) A method as defined in claim 75 wherein said first process is a welding process with a closed power feedback loop.

80. (New) A method as defined in claim 75 wherein said first process is a high heat process.

81. (New) A method as defined in claim 75 wherein said second process is a low heat process.

82. (New) A method as defined in claim 75 wherein said preselected number is essentially the same during both said first and second processes.

83. (New) A method of operating an electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece by a wire feeder, said first process using a first current waveform, said second process using a second current waveform, wherein said first process is a high heat process with a closed power feedback loop, said method comprising:

- (a) shifting between said first and second weld processes;
- (b) counting said waveforms in said first and second processes; and,
- (c) shifting from the process being processed to the other weld process when said waveform count of said weld process being processed reaches a preselected number for such weld process.

84. (New) A method as defined in claim 83 wherein said first weld process is a low heat STT process.

85. (New) A method as defined in claim 83 wherein said second weld process is a high heat STT process.

86. (New) A method as defined in claim 83 wherein said first process is a pulse welding process.

87. (New) A method as defined in claim 83 wherein said second process is an STT process.

88. (New) A method as defined in claim 83 wherein said second process is a short-arc CV process.

89. (New) A method as defined in claim 83 wherein said first process is a CV spray process.

90. (New) A method as defined in claim 83 wherein said second process is a pulse welding process.

91. (New) A method as defined in claim 83 wherein said first process is a high heat process.

92. (New) A method as defined in claim 83 wherein said second process is a low heat process.

93. (New) A method as defined in claim 83 wherein said first process is an electrode positive process and said second process is an electrode negative process.

94. (New) A method as defined in claim 83 wherein said preselected number is essentially the same during both said first and second processes.